

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

M354655828

FACILITY: Battle Creek VA MEDICAL CENTER		SRN / ID: M3546
LOCATION: 5500 ARMSTRONG RD, BATTLE CREEK		DISTRICT: Kalamazoo
CITY: BATTLE CREEK		COUNTY: CALHOUN
CONTACT: Erick Lawlor , GEMS Coordinator		ACTIVITY DATE: 10/16/2020
STAFF: Amanda Chapel	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT:		
RESOLVED COMPLAINTS:		

On August 28, 2020, the Veterans Affairs Medical Center (VAMC) in Battle Creek, located at 5500 Armstrong Rd Battle Creek, Calhoun County, submitted records for review to determine compliance with permit to install (PTI) No. 187-10G. Due to the COVID-19 pandemic, the department has authorized inspectors to conduct off-site records reviews and announced inspections. In conversations with Erick Lawlor, GEMS coordinator, the facility was experiencing an active COVID outbreak. It was determined that the on-site inspection will be put off until the outbreak is contained.

On October 16, 2020, Air Quality Division's (AQD) Amanda Chapel (staff), conducted an in person, announced air quality inspection. This report will summarize the inspection and records for the facility and determine compliance with those requirements in the PTI 187-10G and all other applicable state and federal air regulations.

The VAMC offers a wide variety of healthcare services, which include both inpatient and outpatient care, to over 40,000 veterans in the Southwest Michigan area. The last inspection, on 4/29/2016, showed the facility was not in compliance due to late Malfunctions Abatement Plans (MAPs) not submitted to the department based on the date of start-up. The VAMC is permitted as a synthetic minor source for nitrogen oxides (NOx) for on-campus emergency generators, natural gas and fuel oil fired boilers, and a combined heat and power (CHP) facility fired by natural gas or gasified biomass fuel.

EUCOOLTWR

Emission unit is a two-cell mechanical draft cooling tower for the CHP plant. The facility provided a copy of the MAP as part of the records request. FTC&H prepared the MAP and it was last updated on December 18, 2018. According to the previous inspection, startup of the CHP plant occurred August 2014 when the system was brought online for testing. The cooling tower is required to be equipped and maintained with drift eliminators with a maximum drift ratio of 0.005% or less. Facility submitted documentation with the following information: Brand EVAPCO, Model AT-224-818 (24x18), SN 12-483257, drift less than 0.001%. The facility submitted late notification of the completion of construction, per the last inspection report.

The cooling towers were not operational during the inspection. Mr. Lawlor stated that anything associated with the CHP biomass system is not currently operational as the VA is waiting for an approved safety operational manual that is currently being developed.

Facility appears to be in compliance with records requirements for this emission unit.

EUMATERIAL

Emission unit consists of the biomass and ash handling systems of the CHP plant. A MAP plan was submitted by the facility for this emission unit. FTC&H prepared the MAP and it was last updated on December 18, 2018. The facility submitted late notification of the completion of construction, per the last inspection report.

The hoppers were full of woodchips. The chips were in a fully enclosed space that has garage doors that can be open for delivery access. Cobwebs were observed on some of the gates, indicating that the biomass has not been used for operations.

Facility appears to be in compliance with records requirements for this emission unit.

EUBIO/NGSYSTEM:

Emission unit consists of a biomass gasifier with a closed coupled oxidizer followed by a 40 MMBtu/hour biomass/35 MMBtu/hour natural gas fired boiler with electrostatic precipitator (ESP) for control of particulate matter. Operational parameters for the ESP, like primary and secondary voltage, amperage, and spark rate per minute, were established by NEXTERRA.

A MAP plan, Preventative Maintenance Plan, and Startup/Shutdown Plan was submitted by the facility for this emission unit. FTC&H prepared the MAP and it was last updated on December 18, 2018. Facility also provided a "statement of work" showing the agreement between them and a contractor to supply "biomass fuel of reliable quantity, quality, and size for the CHP plant in Battle Creek".

This was not running during the inspection. There was no energy manager on site to talk to about specifics regarding settings of the system and a possible projected start-up date. Mr. Lawlor acknowledged that when the gasifier is restarted, emissions testing needs to be completed to show compliance with emission limits.

EU-BOILER-2, EU-BOILER-3, and EU-BOILER-4

EU-BOILER-2 is a 24.6 MMBtu/hr natural gas and No. 2 fuel oil fired boiler with steam output of 20,000 pounds per hour with dual-fuel low NOx burners. The boilers underwent testing in March 2014 for Natural gas and April 2014 for fuel oil. The PTI was modified for NOx emissions as a result of the testing results. Recordkeeping is established to track natural gas and fuel oil on a monthly and 12-month rolling basis. A MAP and Startup/Shutdown plan was submitted for the records review. The plan was created by FTC&H and dated December 18, 2013.

EU-BOILER-3 and -EU-BOILER-4 are each 49.1 MMBtu/hr natural gas and No. 2 fuel oil fired boiler. They are also equipped with a dual-fuel, low NOx burners and underwent the same testing as EU-BOILER-2. The facility appears to be tracking total MMBtu burned in natural gas as well as MMCF, monthly. The facility is also tracking amount of monthly fuel oil gallons. Hours of operation for each boiler, and fuel used, are tracked on a sheet located by each boiler.

During the onsite inspection, boiler 3 was operational. Staff spoke to one of the boiler technicians on site. One boiler is always running. The greatest number of boilers that run simultaneously is two. Fuel oil is used only during PM testing as a backup to natural gas. The boiler tech stated the only reason the boilers would run on fuel oil outside of testing would be if they ran out of natural gas. Monthly, semi-annual, and annual PM is completed on site.

The facility is using both fuel oil and natural gas in the boilers. Records provided show the amount of fuel oil used, per month, in all three boilers, combined. The limit for fuel oil used, per boiler, on a 12-month rolling basis is 24,000 gallons per year. Combining all three boilers, the facility is using about 15% of the limit. The facility can produce the 12-month rolling calculations on the excel spreadsheet to show compliance with the permit condition. As discussed with Mr. Lawlor, the facility will separate out each boiler in the spreadsheet to more accurately track the fuel oil used, per boiler. It is recommended the facility adds a 12-month rolling totals row to the spreadsheet, as well, to capture the 12-month usage totals as they go.

Emissions appear to be below the permitted limits, which was determine by testing in March and April 2014 with the emission limits being adjusted based on the testing results.

The facility emailed the two most recent copies of the diesel fuel purchase receipts from March 2020 and September 2020. These identify the purchase of diesel as low sulfur satisfying the requirement to only use low sulfur diesel fuel. This applies to each emission unit requiring using low sulfur diesel fuel as all fuel used on site is the same.

Visible emissions readings were submitted as part of the records request. These should be taken while No. 2 fuel oil is in use as the fuel. High VEs of 5% were recorded and lows of 0% were recorded.

The personnel completing the visible emissions readings has been certified for Method 9 readings. Since any visible emissions were observed, a certified reader needs to complete emissions readings for at least 15 minutes to determine opacity. This is completed during the monthly PM testing.

The facility should update their recordkeeping to allow fuel use tracking to track use in individual boilers as each boiler has individual No.2 fuel use limits. They should also include a 12-month rolling row to better monitor fuel usage.

EUGENPOWERPLANT

Emission unit is a diesel fired engine rated at 561 kW that is used for the orderly shutdown of the CHP plant and to provide emergency power to the boiler plant. EGLE received a certificate of conformity for EUGENPOWERPLANT on 11/21/13. Therefore, the facility is not required to demonstrate compliance with emission limits in condition Nos. I.1 through I.3 provided the permittee continued to operate and maintain the unit as a certified engine.

The engine was not running at the time of the inspection. It is run one hour, monthly, during the PM check. There is an MTU EPA exempt sticker on the engine. Current hours meter reading was 273 hrs 21 minutes.

Based on records submitted, the facility is running the generator an hour each month for preventative maintenance. The generator was run for an hour in December 2019 as emergency generation.

See comments about diesel fuel under the boiler emission units.

EUCHPGEN

This emission unit is a 287 kW diesel-fire emergency engine manufactured in 2013 that provides emergency power to the CHP plant. Facility submitted records showing that the generator has run an hour per month for preventative maintenance. Emission unit has also run in April, May, June, and July for a total of 25 hours.

The CHP was not running during the inspection and needed to be plugged in to get the hours reading off the meter. Hours reading was 132.2 hours. It was tested about a year ago but there are still internal concerns with a safety device testing manual that need to be addressed which is being developed and should be ready to go in October 2020. Since testing, it has been powered down and has not run since the testing in 2019. The unit will need to go back through the power-up phase. Since there has been operations, there are no fuel certifications for this emission unit.

The unit had an EPA certification sticker for being exempt from 2013 stationary emergency engine regulations. It also noted to only use low sulfur fuel.

FG-BOILERS

Flexible group consists of EU-BOILER-2, EU-BOILER-3, and EU-BOILER-4. Fuel oil consumption is limited by a material limit of 60,000 gallons per year on a 12-month rolling time period. The records show that 2,794 gallons of fuel have been used so far in 2020. The facility should be keeping rolling 12-month usage amounts for the fuel but they appear to be well below the permitted limit. This was noted in the previous inspection report and should be addressed.

The daily boiler logs were scanned and emailed as part of the records review. Boiler records are being kept hourly and daily in the boiler room. Temperature and fuel are monitored for each boiler. At this time, only three boilers are in operation at the facility. The sheet is configured such that it would be clear if all four boilers were running at any one time and the issue could be addressed.

FG-GENERATORS

Flexible group consists of five diesel-fired emergency power generators providing service to seven buildings. Two of the generators service four buildings (EUGENERATOR8&9 and EUBLDG24&25GEN). VAMC contracts scheduled maintenance of the generators to an outside vendor. As needed maintenance is completed internally. VAMC performs readiness testing of each emergency generator once per month for a one-hour period. This is tracked in the recordkeeping spreadsheet. All diesel-fired emergency engines with a manufacture date after April 1, 2006 are subject to 40 CFR Part 60, Subpart IIII. Emergency engines with a manufacture date before April 1, 2006 are subject to 40 CFR Part 63, Subpart

ZZZZ, however, existing emergency engines located at the institutional facilities are exempt from this regulation. All emergency engines on campus are restricted to using No. 2 fuel oil with a maximum sulfur content of 15 ppm or 0.0015% by weight.

All generators on site undergo readiness testing monthly as well as triannual tests that run the generators for 4 hours instead of the monthly one hour. A third party maintains the boilers on a preventative maintenance schedule where they change fluids, check the battery, hoses, and replace parts. In-house preventative maintenance happens weekly and monthly to check the fuel, oil, antifreeze and other operations.

The facility is tracking operating hours of the engines, both preventative maintenance and run hours. All the generators ran 2 hours in December 2019 and one hour the other months of 2020. The generators are all running well below the 475 hours, per engine, in a 12-month rolling time period. The facility should also update their spreadsheet to include tracking the rolling 12-month total of operating hours per engine.

See comments about diesel fuel under the boiler emission units.

Generator	Nameplate Reading	Hours Meter
EUGENERATOR8&9	Cummins 125 kW	193.8 hours
EUBLDG24&25GEN	MTU/John Deer 50 kW	361.12 hours
EUGENERATOR13	Cummins/Katolight 300 kW	24 hrs 5 min + 522.9 hours
EUGENERATOR30	Cummins 275 kW	199.8 hours
EUBLDG163GEN (Bldg 22 Gen)	CAT 500 kW	272.6

FG-EMERGEN

Flexible group consists of nine diesel-fired emergency power generators providing service to eight buildings. These generators were installed in October 2014 and are subject to 40 CFR Part 60, Subpart III. Per the last inspection, all engines in this flexible group had manufacture stickers that states the engine met emission standards established by USEPA for the engine manufacture date.

Records submitted show the facility is tracking operating hours of the engines, both preventative maintenance and run hours. All the generators ran 2 hours in December 2019 and one hour the other months of 2020. The generators are all running well below the 475 hours, per engine, in a 12-month rolling time period. The facility should also update their spreadsheet to include tracking the rolling 12-month total of operating hours per engine.

See comments about diesel fuel under the boiler emission units

Emergency Generator	Nameplate Reading/EPA Cert.	Hours Meter
EUBLDG165GEN (Bldg 83/84 Gen)	MTU 750 kW	181 hrs 24 min
EUBLDG135AGEN (Bldg 5 or 12 Gen)	MTU 750 kW	220 hrs 54 min
EUBLDG135BGEN (Bldg 5 or 12 Gen)	MTU 750 kW	162 hrs 39 min
EUBLDG170GEN (Bldg 39 Gen)	MTU 600 kW	262 hrs 54 min
EUBLDG169GEN (Bldg 4/7/12 Gen)	MTU 600 kW	254 hrs 8 min
EUBLDG161GEN (Bldg 82 Gen)	MTU 500 kW	231 hrs 24 min
EUBLDG159GEN (Bldg 3 and 14 Gen)	MTU 400 kW	199 hrs 14 min
EUBLDG136GEN (Bldg 136 Gen)	MTU 300 kW	179.2 hrs
EUBLDG157GEN (Bldg 157 Gen)	Kohler 250 kW	119.2 hrs

FGFACILITY

This flexible group consists of all process equipment, "source wide" including equipment covered by other permits, grandfathered equipment, and exempt equipment. VAMC has only one air permit and per the last inspection and discussion with Mr. Lawlor, there is no other equipment left on campus that may be grandfathered aka installed prior to August 15, 1967.

FGFACILITY is limited to 89.9 tons per year of NOx emissions per 12-month rolling time period. Based on calculations submitted, the facility is well below their facility wide NOx limits. The facility does need to include the exempt laundry operations into the NOx calculations.

This flexible group limits the facility to not operating more than three boilers at any one time. EUBIO/NGSYSTEM boiler is not running as the CHP plant is down since 2019 except for monthly PM.

Equipment not identified in PTI 187-10G

The facility has a maintenance paint spray booth that was remodeled in early 2016. Per the last inspection, VAMC personnel indicated that they switched over to HVLP spray guns and use predominantly waterborne coating following remodeling.

Mr. Lawlor provided the paint logs for the facility. There is a sheet next to the paint booth where the usage is tracked each time the booth is used. According to the records, the facility has used less than 3 gallons of paint each month. This is well below the 200 gallons a month allowed under Rule 287(2)(c).

The paint booth filters had some paint on them but they were fairly clean and installed properly. The records are kept in a desk by the paint booth. The filters are replaced on a PM schedule.

The facility has a woodworking shop that contains a variety of wood working equipment. Per the last inspection, this equipment vents to an externally vented fabric filter control system. This was confirmed to still be the case by Mr. Lawlor. There are drums underneath the fabric filter controls units to collect the filtered dust. This process is exempt from air use permitting under Rule 285(2)(l)(vi)(c).

There are two 30,000 gallon above ground storage tanks with secondary containment that stores No. 2 fuel oil used throughout the facility. The storage tanks are exempt from permitting under Rule 284(2)(d).

The VAMC replaced ethylene oxide (ETO) based sterilizers in 2013 with Sterrad NX low temperature sterilization system that uses hydrogen peroxide for disinfection of medical equipment. These are exempt from permitting under Rule 281(2)(i)

The VAMC has a laundry facility that receives laundry from other VA facilities. Before the remodel in 2016, the facility has two natural gas fired boilers in the building which were installed in 1997 and rated at 5,175 pounds steam/hour. These boilers were replaced with smaller, natural gas fired water heaters. These are exempt from permitting under Rule 282(2)(b)(i). The facility has automated washers, gas fired dryers, and folding machines. This equipment is exempt from air use permitting under Rule 281(2)(e) and (f). There are no dry-cleaning operations at the laundry facility.

The facility submitted an updated tracking log on October 21, 2020. This log includes worst-case emissions estimates from the laundry facility as well as the boilers and emergency generators on site. The natural gas usage in the laundry facility should be included in the overall FGFACILITY NOx emissions calculations henceforth. In a conversation with Mr. Lawlor, we discussed the recordkeeping requirements for FGFACILITY specifically to calculate the NOx emitted from the facility to ensure they are meeting the FGFACILITY NOx limit.

It is imperative the facility updates the emissions tracking to track natural gas and fuel oil separately, per boiler. All usage and emissions from EU-BOILERS are currently being tracked together.

The facility appears to be in compliance with PTI 187-10G and all other applicable state and federal air regulations.

NAME Amber Ayres

DATE 10/21/2020

SUPERVISOR RL 11/6/20